

New 'Map of Life' project aims to show distribution of all animals, plants on planet

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A research team involving Yale University and the University of Colorado Boulder has developed a first public demonstration version of its "Map of Life," an ambitious Web-based endeavor designed to show the distribution of all living plants and animals on the planet.

The demonstration version allows anyone with an Internet connection to map the known global distribution of almost 25,000 species of terrestrial vertebrate animals, including mammals, birds, amphibians, reptiles and North American freshwater fish. The database, which continues to expand, already contains hundreds of millions of records on the abundance and distribution of the planet's diverse flora and fauna.

"We are taking 200 years of different types of knowledge coming from different sources, all documenting the locations of species around the world and compiling them in a way that will greatly enhance our knowledge of biodiversity," said CU-Boulder Associate Professor Robert Guralnick of the ecology and evolutionary biology department, part of the Map of Life research team. "Such information could be used by any organization that needs to make informed decisions regarding land management, health, conservation and climate change."

The initial version of the map tool being released today is intended to introduce it to the broader public, according to the researchers. It allows users to see several levels of detail for a given species -- at its broadest, the type of environment it lives in, and at its finest, specific locations where the species' presence has been documented. One function allows

users to click a point on the map and generate a list of vertebrate species in the surrounding area. More functions will be added over time, according to the team.

"It is the where and the when of a species," said Walter Jetz, associate professor of ecology and evolutionary biology at Yale and the project lead. "It puts at your fingertips the geographic diversity of life. Ultimately, the hope is for this literally to include hundreds of thousands of animal and plant species and show how much or indeed how little we know of their whereabouts."

A paper by Jetz, Guralnick and Jana McPherson of the Calgary Zoological Society describing the evolving Map of Life technology tool appeared in a recent issue of the journal *Trends in Ecology and Evolution*.

By highlighting the known abundance and distribution of species, the researchers hope to identify and fill knowledge gaps and also offer a tool for detecting change over time. They expect the map tool will prove useful for professional scientists, wildlife and land managers, conservation organizations and the general public.

The team is using information gleaned from a wide variety of sources, including field guides, museum collections and wildlife checklists that involved scientists, conservation organizations and "citizen scientists." The project's success will depend on participation by other scientists and informed amateurs, and subsequent versions of the mapping tool will offer mechanisms for users to supply new or missing information about the distribution and abundance of particular species.

Jetz called the Map of Life "an infrastructure, something to help us all collaborate, improve, share and understand the still extremely limited geographic knowledge about biodiversity." The team continues to work

on several other tasks and challenges, including who will be contributing data and how information supplied by the contributors will be verified and curated.

"A small but powerful next step is to provide a means for anyone, anywhere on the globe to use their mobile devices to instantly pull up animal and plant distributions and even get a realistic assessment on the odds of encountering a particular species of wildlife," said Guralnick, who also is the curator of invertebrate zoology at the University of Colorado Museum of Natural History.

Guralnick said the Map of Life project is following in the footsteps of other knowledge repositories like the GenBank project, a National Institutes of Health-funded effort with a public database of more than 135 million gene sequences from more than 300,000 organisms that allows users to explore genes and genomes using bioinformatics tools. In the biodiversity arena, the Global Biodiversity Information Facility in Copenhagen has developed an important resource that provides access to more than 300 million records of plant and animal occurrences, which is one of the distributional databases being used by the Map of Life team.

More information: www.mappinglife.org/

Provided by University of Colorado at Boulder

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